3 key technical designs to create Smarter Workspaces

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Overview

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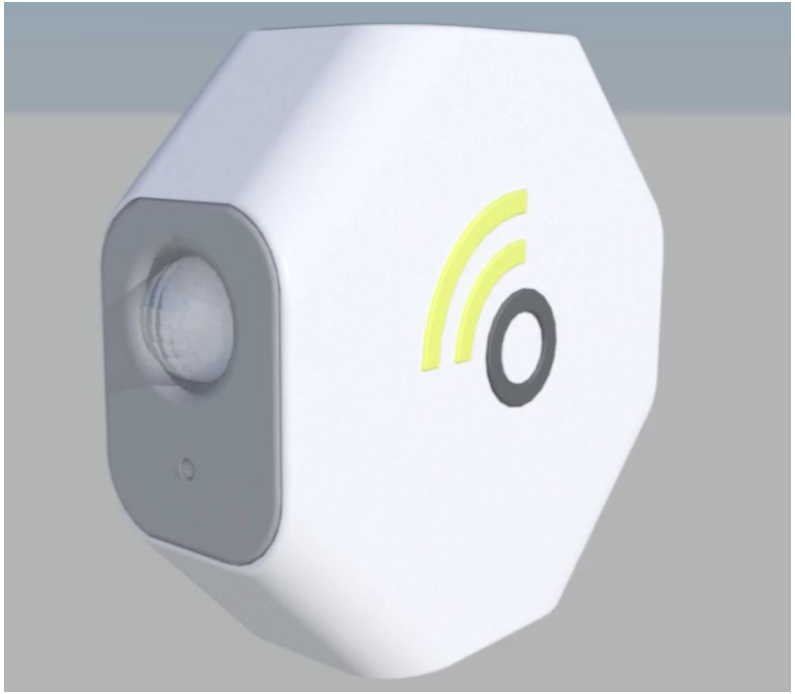
In today's session we'll cover

- Types of utilisation sensors available
- The ideal network required for Smart Buildings
- Deployment best practices to mitigate risks
- Q&As

Types of utilisation sensors and how they work



Desk & phone booth sensors

- Battery Powered - 2-3 year battery life
- PIR - Motion sensors

Meeting room presence

People counters

- Mains powered
- Image based

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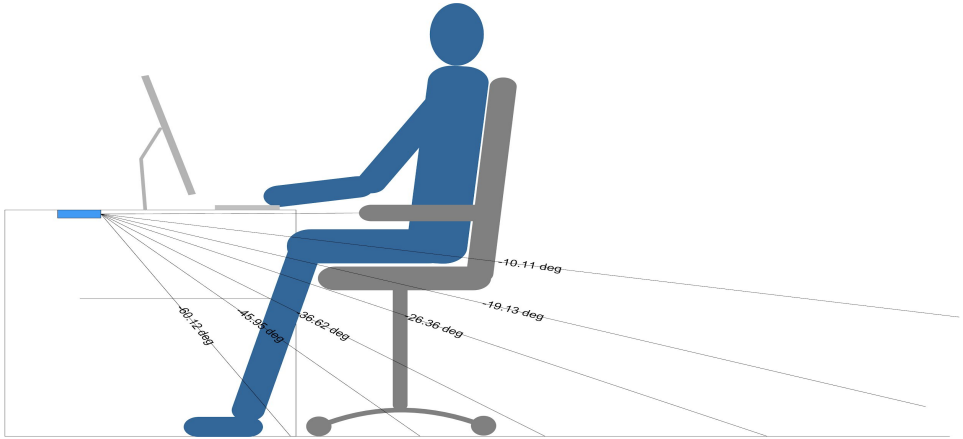
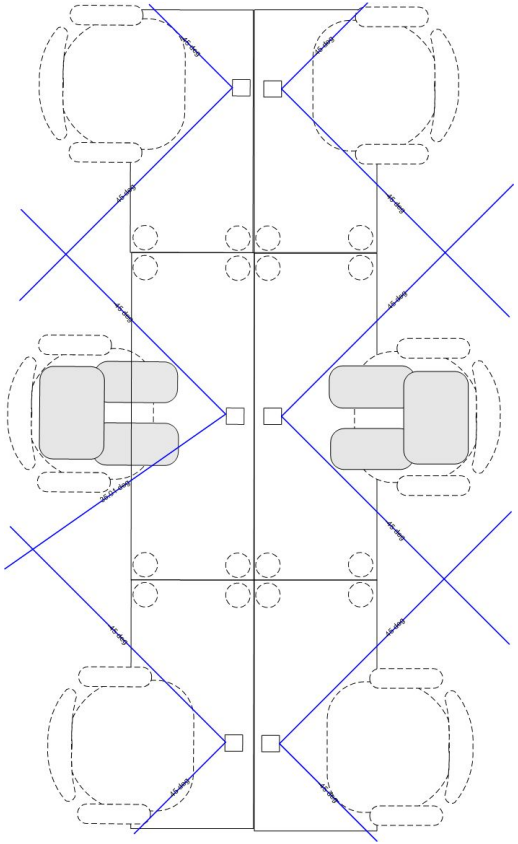
Accuracy

Focus is in optimising sensor design and software algorithms is to minimise false positives by:

- A narrow field of focus for the PIR
- Categorising '*presence*' as being at desk for at least 10 minutes





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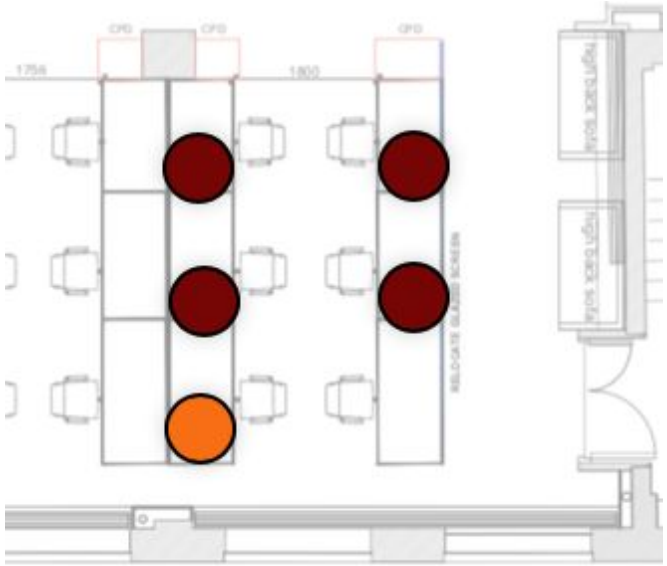
Do you need a sensor for each desk?

Not necessarily

- **50% coverage** can help extrapolate the high level utilisation figures
- **Move sensors** between floors to do time bound utilisation studies



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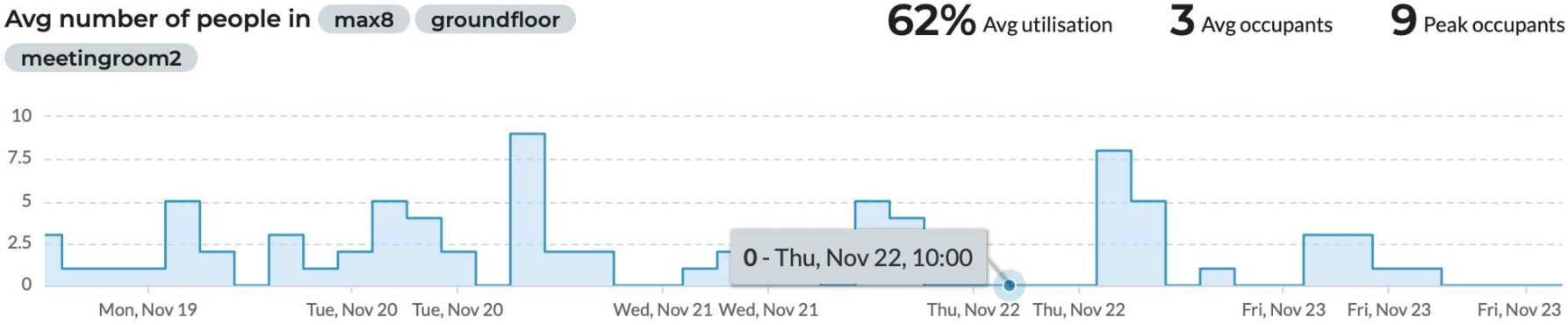
Meeting room counters

Ceiling mounted counters installed over meeting room doors



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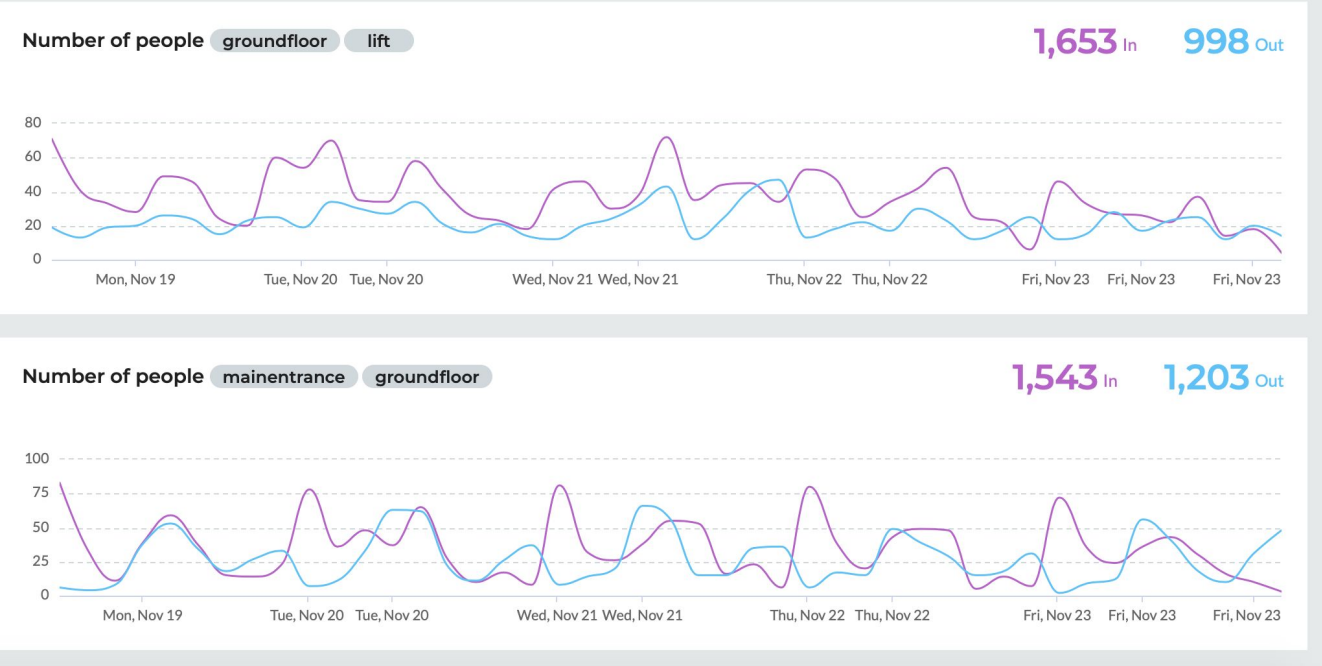
Understanding Traffic

Ceiling mounted counters installed over critical footfall areas



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The ideal network required for Smart Buildings

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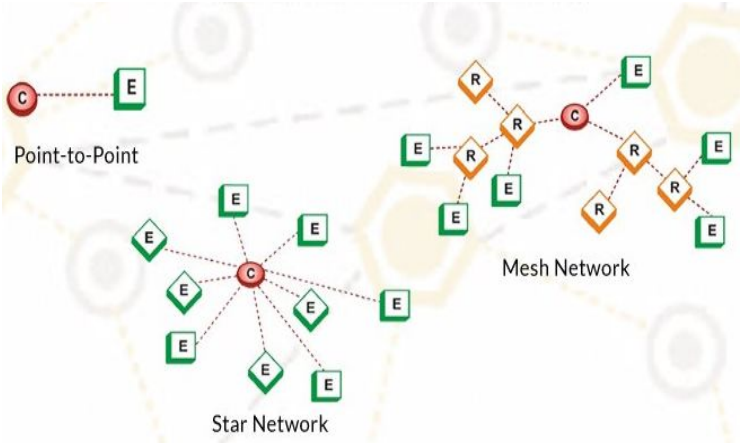
Wireless Sensor Networks

Wireless sensors have been in used in building automation for nearly twenty years

- Early systems used Point to Point communication
- Then mesh networks emerged to overcome some of the challenges
- In the last few years we've seen the emergence of LPWANS (Low power wide area networks)
- Sensor networks are increasingly being deployed for wide range of use cases



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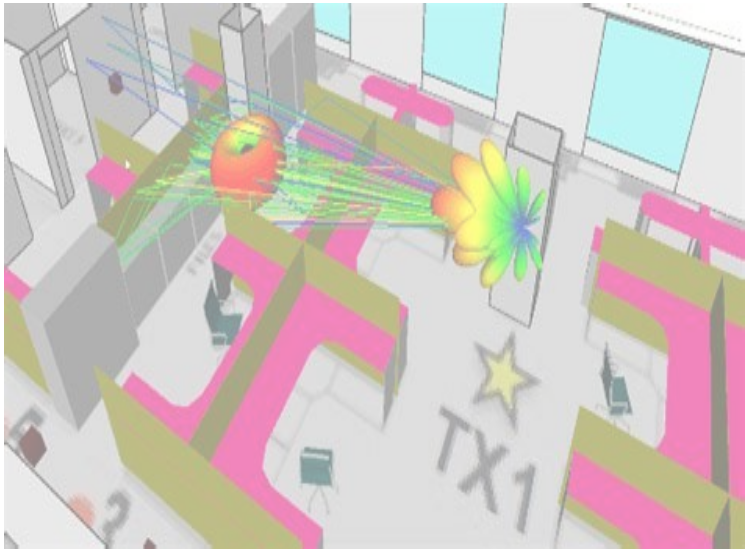
RF considerations

Path loss: Buildings can create a challenge to the transmission of radio signals.

- The higher the frequency, the worse it will get.
  - WiFi & BlueTooth don't travel far within a building
- Use lower frequency in 433/868/916 mHz - ISM bands
- Mesh networks require management
  - Star networks are simple to install & operate



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Shouldn’t touch the human network

Why we’re not on the IT network

- Segregated - means sensors don’t interfere with or are affected by existing systems & networks
- Separate - hackers have been able to breach corporate security through 3rd party WAN access
- Siloed - manage your IoT devices differently, they are not PC’s

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Security

IoT security has generated a lot of headlines. This has mainly been for consumer devices

- Avoid using IP for sensors when you can..
- Authenticate ensure you only allow known sensors and gateways on system
- Encrypt from your sensor to your cloud or platform endpoint
- Ops Actively manage your device security via clearly defined InfoSec processes

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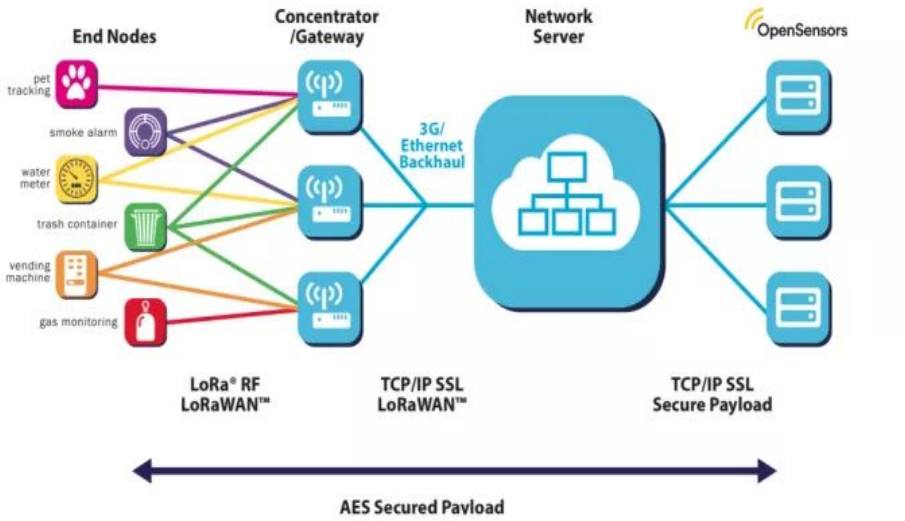
Why LoRaWAN



LoRaWAN is a network layer that runs on top of the LoRa radio layer.

- LoRa stands for Long Range which in a building context means exceptional range
- LoRaWAN is an open standard allowing seamless interoperability between different manufacturers devices
- LoRaWAN networks can be public or private
- LoRaWAN provides end to end device security

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Engineering the future of smart buildings

Deployment best practices that mitigate risks

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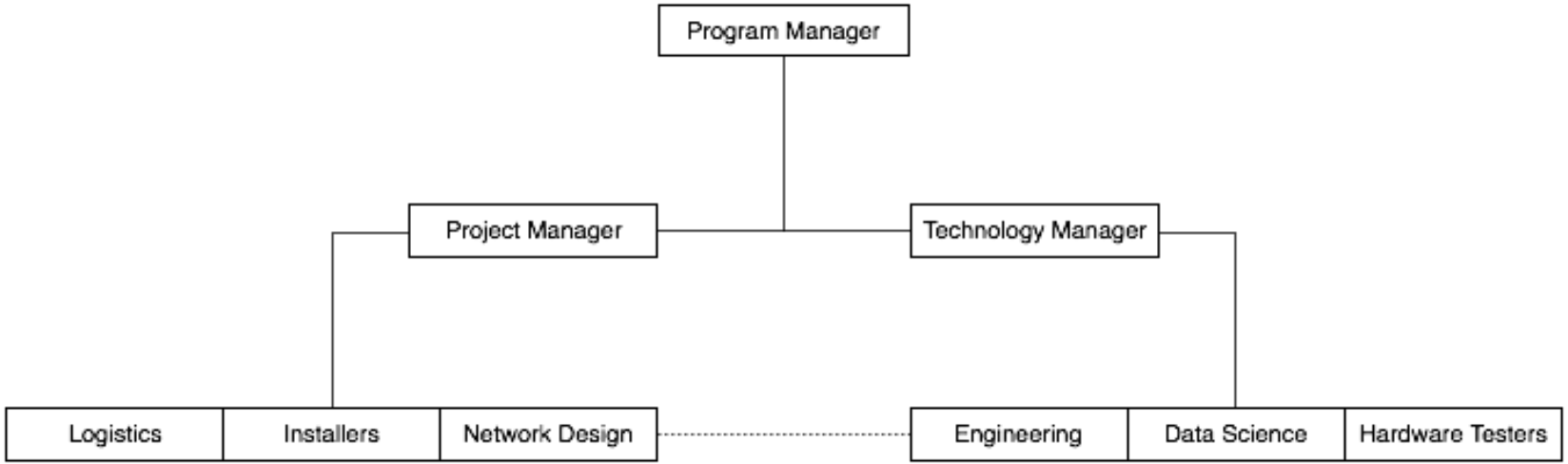
Assemble a multi-disciplinary team



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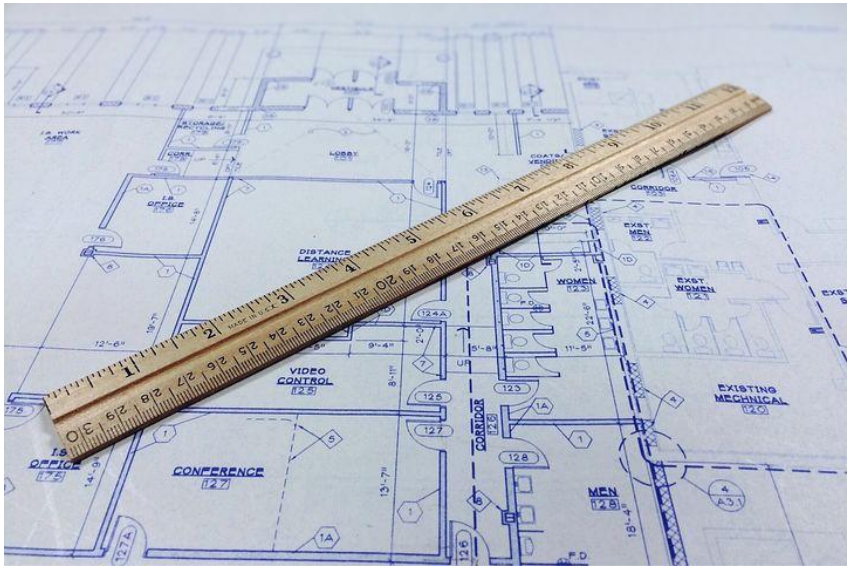
Phase 1 - Prepare



- Kickoff meeting
- Ordering Stock
- Site survey
- Network design
- Completing pre-install work
- Hardware testing
- Shipping

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Phase 2 - Enable

- Installation
- Setup of multi-channel support (email, phone, web chat)
- Start tracking utilisation data
- Onboarding users
- Workshops for staff

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Phase 3 - Evaluate

- Ongoing review meetings with the client
- Reporting on insights gathered from utilisation data
- Coordinating office changes
- Gathering product feedback
- Reviewing ticket data for hardware improvements

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Key takeaways

Choose the right type(s) of utilisation sensors based on your end goal

- Desk occupancy?
- Meeting room occupancy?
- People counters?

Network considerations

- Wireless sensor networks
- RF consideration
- Security
- LoraWan

Assemble a multidisciplinary team

- Prepare
- Deploy
- Enable
- Evaluate

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